

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A method for synthesizing an intermetallic negative electrode for an electrochemical cell comprising: dissolving one or more metal salts in an organic solvent forming a solution; adding a metal reducing agent to the solution to form an intermetallic compound; precipitating the intermetallic compound; separating the precipitate from the solution and forming the precipitate into an electrode.
2. A method according to claim 1, in which two or more metal salts are used.
3. A method according to claim 1, in which the metal salts are metal chlorides.
4. A method according to claim 3, in which the metal chlorides are selected from the transition metal elements and one or more of the group IIIa, IVa and Va elements.
5. A method according to claim 3, in which the metal chlorides are two or more of Al, In, Sn, Sb, Cr, Mn, Fe, Co, Ni, Cu and Zn.
6. A method according to claim 1, in which the organic solvent is selected from one or more of ethylene glycol, ethanol, glycerol and xylenes.
7. A method according to claim 1, in which the reducing metal is Zn or Mg.
8. A method according to claim 1, in which the intermetallic electrode contains an excess of one or more of metal element components within the electrode matrix.

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9. A method according to claim 1, in which stoichiometric amounts of metal salts are dissolved in an organic solvent, stirred for ½ to 10 h at approximately 0 °C during the addition of a reducing metal powder, and then stirred at room temperature for another 2 to 24 h.

10. A method according to claim 9, in which the solid intermetallic product is annealed in an inert atmosphere or in a reducing atmosphere at 150 - 400 °C.

11. A method according to claim 1, and further comprising adding one or more grain growth inhibitors, porosity regulators, polymeric binders and electronically conducting additives.

12. An electrochemical cell containing an intermetallic negative electrode, a non-aqueous electrolyte and a positive electrode, the intermetallic electrode being made in accordance with the method of claim 1.

13. A battery consisting of a plurality of cells of claim 12, said cells being arranged in series and/or in parallel.

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